

# Layoff Impacts in Missouri: *Air Transportation Industry*

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## LOCAL-REGIONAL-STATE ECONOMIC MODEL

LRS-0901-2  
September 2001

MISSOURI DEPARTMENT OF ECONOMIC DEVELOPMENT



MISSOURI ECONOMIC RESEARCH & INFORMATION CENTER



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## Key Findings

- Layoffs would result in a gross state product (GSP) decrease of 0.06% in 2001, translating into a \$101.1 million dollar annual loss in GSP.
- By 2009, GSP in Missouri recovers slightly, resulting in a continued decrease of 0.05% in GSP, translating into a \$82.4 million dollar annual loss.
- In 2001, the loss of 819 air transport jobs would result in the loss of 1,373 ancillary jobs in the state economy - for a total loss of 2,192 jobs (at \$40,899 per job) and \$89.7 million in wages across Missouri.
- Transportation, Communications and Public Utilities would lose 1,016 jobs (at \$43,268 per job), Services would lose 443 jobs (at \$39,277 per job) and Retail Trade would lose 300 jobs (at \$18,765 per job).
- By 2009, the region recovers 17.2% of the original jobs lost, resulting in the continued loss of 1,814 jobs (at \$46,769 per job) and \$84.8 million in wages.
- The loss of 632 air transportation jobs in Kansas City would result in the loss of 841 ancillary jobs in the Greater Kansas City Region - for a total loss of 1,473 jobs (at \$43,299 per job) and \$63.8 million in wages.
- Transportation, Communications and Public Utilities would lose 770 jobs (at \$46,624 per job), Services would lose 277 jobs (at \$40,173 per job) and Retail Trade would lose 185 jobs (at \$18,918 per job).
- By 2009 the region experiences a small recovery, with the continued loss of 1,297 jobs (at \$49,279 per job) and \$63.9 million in wages - a job gain of 11.9% from 2001.
- The loss of 187 air transportation jobs in St. Louis would result in the loss of 312 ancillary jobs in the St. Louis Metro Region - for a total loss of 499 jobs (at \$37,412 per job) and \$18.7 million in wages.
- Transportation, Communications and Public Utilities would lose 234 jobs (at \$31,887 per job), Services lose 105 jobs (at \$40,660 per job) and Retail Trade would lose 66 jobs (at \$19,234 per job).
- By 2009 the region experiences a moderate recovery, with the continued loss of 381 jobs (at \$42,460 per job) and \$16.2 million in wages - a job gain of 23.6% from 2001.
- During 2001, the state would lose an estimated \$4.1 million in tax revenues due to the layoffs. However, decreased demand for public services due to declines in population would save the state \$439,500 in costs. This leads to a net state tax cost of \$3.7 million in 2001.
- The tax impact remains steady through 2009, with the estimated loss of \$5.4 million in state tax revenues. However, decreased demand for public services due to declines in population would save the state \$2.2 million in costs. This leads to a net state tax cost of \$3.2 million in 2009.
- Between 2001 and 2009, the State of Missouri is estimated to lose \$23.1 million (net present value) in tax revenues due to layoffs in the air transportation industry.

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## **LOCAL-REGIONAL-STATE ECONOMIC MODEL**

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Analysis and reporting by David J. Peters.

## I. Overview

On September 11, 2001, terrorists hijacked four U.S. carrier commercial jets, crashing two into the New York World Trade Center towers and another into the Pentagon in Washington, D.C. The fourth plane crashed in rural Pennsylvania. Airlines nationwide are grappling with declining air traffic following the terrorist attacks. As of September 20, 2001 U.S. carriers have announced layoffs of more than 70,000 employees during the preceding week. Following this announcement, the Boeing Company reported that it plans to eliminate as many as 30,000 employees, nearly 30% of its commercial aircraft workers, by the end of 2001 because of declines in the U.S. air transportation industry. However, Boeing's layoffs will not affect staffing at the St. Louis-based military arm of the nation's largest aerospace company.

The airline industry is lobbying the U.S. Congress for emergency assistance totaling at least \$17.5 billion. The package would include \$5 billion in immediate aid and \$12.5 billion in credit and loans. The industry is also asking Congress to pass separate legislation specifying that terrorist attacks are an act of war, and therefore airlines should not be liable for fatalities and property damage occurring on the ground. Further, the industry argues that the government should bear much of the cost for enhanced security in airports.

According to information maintained by the Missouri Department of Economic Development, 819 airline workers are in jeopardy of being laid off due to declines in the air transportation industry. American Airlines is anticipated to furlough 100 transportation workers in Kansas City and St. Louis. Trans World Airlines is anticipated to furlough 590 workers. This includes 450 machinists in Kansas City, 100 ticket reservation workers in St. Louis, and 40 machinists also in St. Louis. Vanguard Airlines is anticipated to furlough 129 workers in Kansas City. To date, no other airlines have confirmed layoffs in Missouri.

Anticipating these possible layoff events, the Missouri Economic Research and Information Center has employed its Local-Regional-State Economic Model (LRS) to estimate the economic impact layoffs will have on the regional and state economy. It is assumed for this analysis that the air transportation industry will eliminate 3.1% of its Missouri work force, translating into a loss of 819 jobs (earning an average wage of \$45,392 per job) and \$37.2 million in wages. All of these job losses will occur in the Kansas City and St. Louis metropolitan areas. Data is taken from layoff notices maintained by the Missouri Department of Economic Development, and are estimated jobs losses that have not yet occurred.

## Kansas City and St. Louis Regional Profile

The economy of the Kansas City Metro Region generally kept pace with the economy of Missouri as a whole. There has been a varied amount of economic growth in this region during the last ten years, with Cass and Platte Counties seeing good progress, while urban areas in Jackson County were growing at a slower pace. The population growth since 1990 in the Kansas City Metro Region was 8.7%, compared to 6.7% for the state. The poverty rate for this area is 10.4%, compared with 12.4% for the state as a whole. The growth in personal income and per capita income in the Kansas City Metro Region over the past decade is nearly equivalent to the growth of the state as a whole. Per capita income in the region was \$26,073 during 1998, slightly more than the state average of \$25,150.

Map 1.1  
Kansas City Metropolitan Region, Missouri



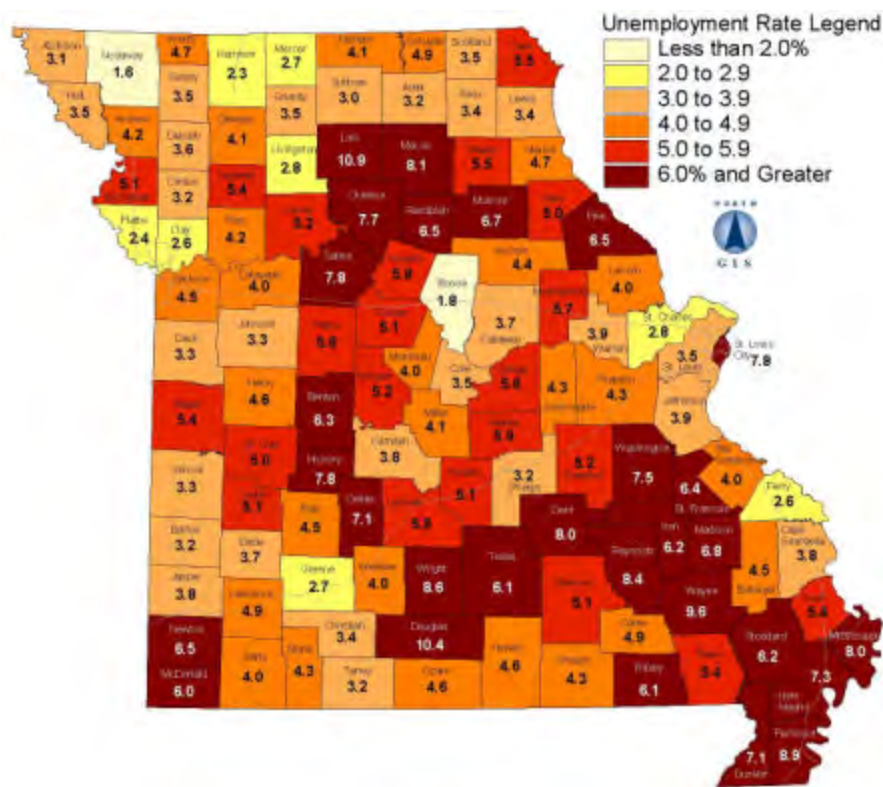
The economy of the St. Louis Metro Region is generally ahead the economy of Missouri as a whole. However, there has been an extremely varied amount of economic growth in this region during the last ten years. The urban core has experienced the slowest growth in the state, while the outlying counties have experienced some of Missouri's fastest growth. The population growth since 1990 in the St. Louis Metro Region was 3.1%, compared to 6.7% for the state. The poverty rate for this area is 10.7%, compared with 12.4% for the state as a whole. However, the poverty rate in the urban core is well over 30%. The growth in personal income and per capita income in the St. Louis Metro Region over the past decade is nearly equivalent to the growth of the state as a whole. Per capita income in the region was an extremely high \$30,816 during 1998, more than the state average of \$25,150.

Map 1.2  
St. Louis Metropolitan Region, Missouri



In August 2001, the average unemployment rate in the Kansas City metro region was 3.9%. This translates to 25,032 unemployed workers in the region, out of a labor force of 646,375. Jackson County had the highest unemployment rate (4.5%), while Platte County had the lowest (2.4%). The average unemployment rate in the St. Louis metro region was 4.1%. This translates to 45,419 unemployed workers in the region, out of a labor force of 1,098,543. However, this rate is not uniform across the region. St. Louis City had the highest rate at 7.1%, while St. Charles County (3.1%) and St. Louis County (3.5%) had the lowest rates. The national unemployment rate was at 4.5%.

**Map 1.3**  
**Unemployment Rates Across Missouri, August 2001**



Source: Current Employment Statistics, MO Department of Economic Development

## Air Transportation Industry

In Missouri, employment and wages in the air transportation industry have increased over the last decade. At the same time, however, average wages per job have decreased since 1990 - likely indicating the increased number of small air transport firms that pay lower wages. Air transportation employment in Missouri was estimated at 26,733 in 2000, a increase of 27.2% since 1990. Total annual real wages during 2000 was estimated at \$995.5 million, an increase of 7.4% since 1990. Estimated annual average real wages per job during 2000 was \$37,241, a decrease of -15.6% since 1990. The number of air transportation firms in Missouri in 2000 was estimated at 301, an increase of 23.6% since 1990. In 2000, the air transportation industry accounted for 1.0% of total employment and 1.2% of total wages in Missouri. The annual average wage per job during 2000 in the air transportation industry was \$37,241, above the state average wage per job of \$31,217.

**Table 1.1**  
**Air Transportation in Missouri, 1990-2000**

INDICATOR	1990	2000	Percent Change
Total Employment (Percent of Total Missouri Employment)	21,013 (0.9%)	26,733 (1.0%)	27.2% ↑
Total Wages, in Millions of 2000 Dollars (Percent of Total Missouri Wages)	\$937.3 (1.5%)	\$995.5 (1.2%)	7.4% ↑
Annual Average Wage Per Job, in 2000 Dollars (Missouri Annual Average Wage Per Job)	\$44,131 (\$28,462)	\$37,241 (\$31,217)	-15.6% ↓
Total Establishments	243	301	23.6% ↑

Source: Covered Employment and Wages, MO Department of Economic Development.

**Table 1.2**  
**Air Transportation Employment by Firm in Missouri, 2001**

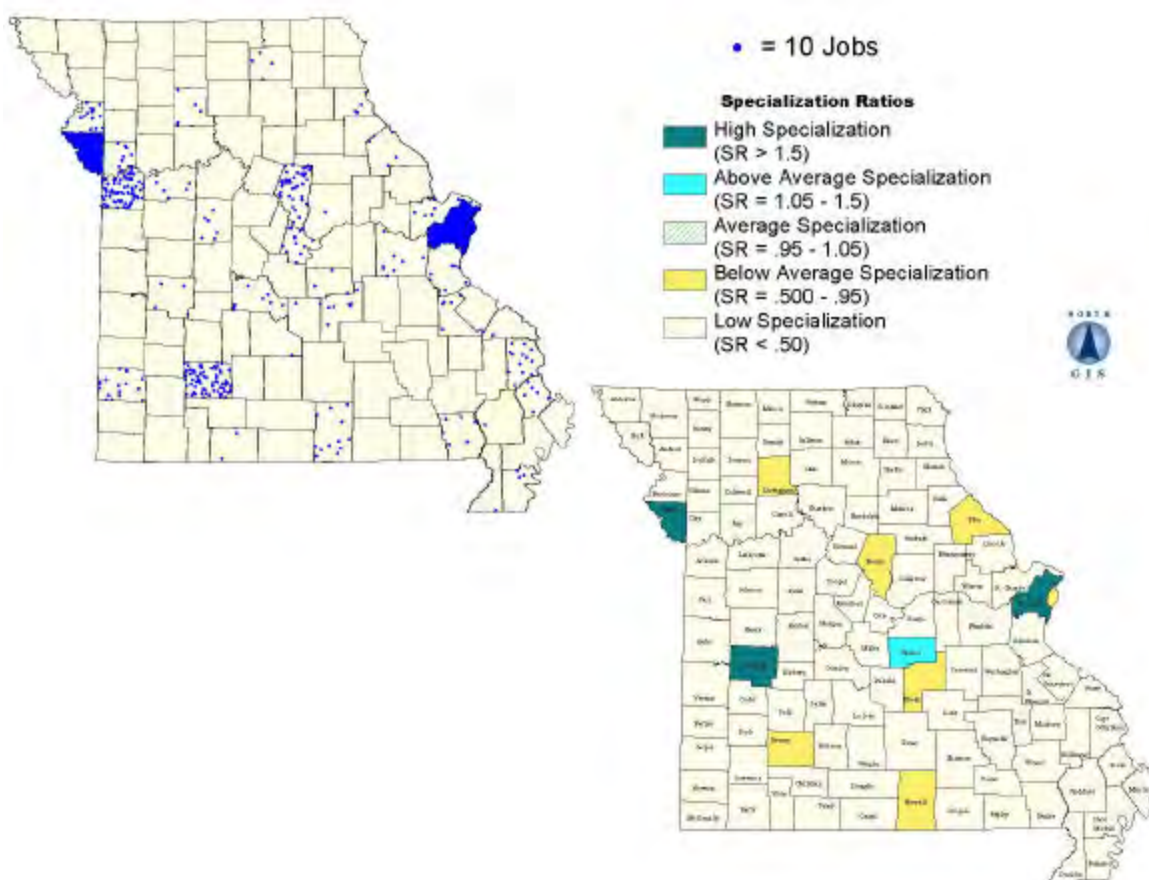
FIRM RANK	EMPLOYMENT	FIRM RANK	EMPLOYMENT
(01)Trans World Airlines	More than 10,000	(11)Delta Airlines	Less than 250
(02)Trans World Express	750-1,000	(12)Air Midwest	Less than 250
(03)Southwest Airlines	500-750	(13)America West Airlines	Less than 250
(04)Vanguard Airlines	500-750	(14)American Eagle Airlines	Less than 250
(05)American Airlines	Less than 250	(15)Air Wisconsin	Less than 250
(06)Northwest Airlines	Less than 250	(16)Northwest Airlin	Less than 250
(07)Midwest Express	Less than 250	(17)Queen City Air Freight	Less than 250
(08)Continental Airlines	Less than 250	(18)Ryan Airlines	Less than 250
(09)United Airlines	Less than 250	(19)AIRNET	Less than 250
(10)US Airways	Less than 250	(20)Mountain Air Cargo	Less than 250

Source: Covered Employment and Wages, MO Department of Economic Development.

In 2000, the majority of air transportation jobs were located in metropolitan St. Louis, Kansas City, Columbia and Springfield. Counties with the largest employment base were St. Louis, Platte, St. Louis City, Jackson and Greene.

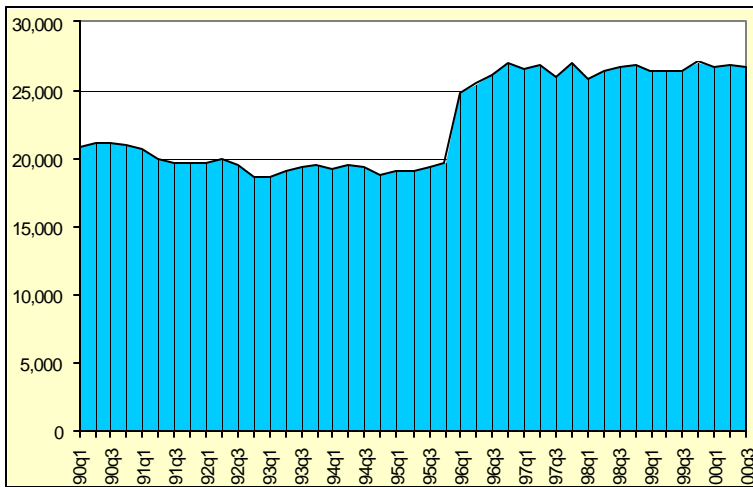
According to specialization ratios (location quotients), 3 Missouri counties were highly specialized in air transportation employment. These areas were concentrated in metropolitan St. Louis, Kansas City and St. Clair County. The most specialized counties in the state were Platte, St. Louis and St. Clair. It is important to note that SRs measure the proportion of industry employment relative to the state average, not the total number of jobs.

**Map 1.4**  
**Air Transportation Employment and Specialization Across Missouri, 2000**



Source: Covered Employment and Wages, MO Department of Economic Development.

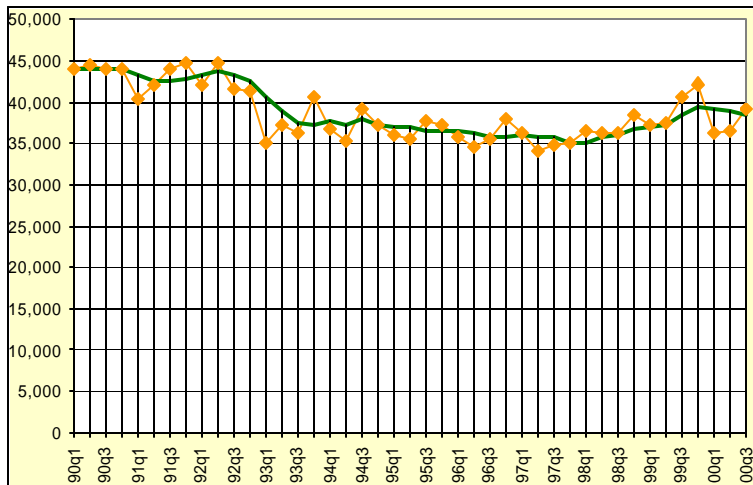
### EMPLOYMENT TRENDS, 1990-2000



- Air transportation employment in Missouri has increased by 27.2% since 1990.
- The most current data estimates 26,733 air transport jobs during 2000.
- Employment was highest during 4<sup>th</sup> quarter 1996, with 26,983 jobs. Employment was lowest during 4<sup>th</sup> quarter 1992, with 18,551 jobs.

Source: Covered Employment & Wages, MO Department of Economic Development

### ANNUAL AVERAGE WAGE PER JOB, 1990-2000



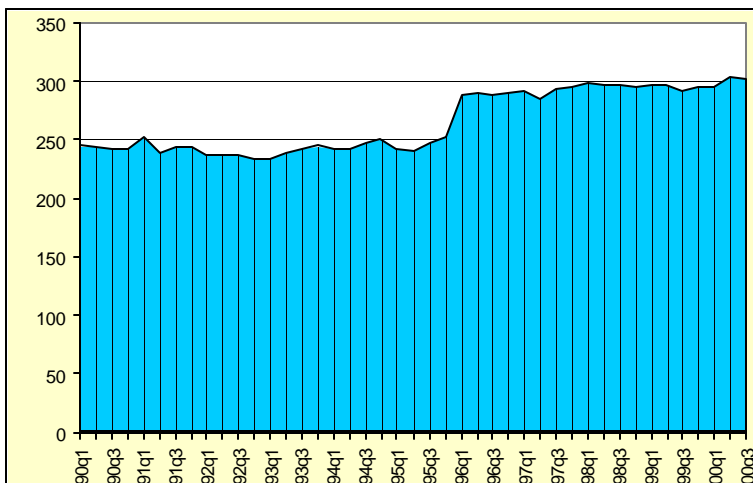
- Annual average wages per job in air transportation have decreased by -15.6% since 1990.
- The most current data estimates an average wage per job of \$37,241 during 2000 - higher than the state average wage of \$31,217.
- Average wages per job were highest during 2<sup>nd</sup> quarter 1992, at \$44,812 per job. Average wages per job were lowest during 2<sup>nd</sup> quarter 1997, at \$34,070 per job.

Green line represents four-quarter rolling average.

Wages adjusted to 2000 real dollars.

Source: Covered Employment & Wages, MO Department of Economic Development

### ESTABLISHMENT TRENDS, 1990-2000



- The number of air transportation establishments in Missouri has increased by 23.6% since 1990.
- The most current data estimates 301 air transport establishments during 2000.
- Establishments were most numerous during 2<sup>nd</sup> quarter 2000, at 304 entities. Establishments were least numerous during 1<sup>st</sup> quarter 1993, at 234 entities.

Source: Covered Employment & Wages, MO Department of Economic Development

## II. Methods

The economic impact of air transportation layoffs in Missouri is analyzed using the Local-Regional-State Economic Model (LRS). LRS uses input-output models and econometric models to estimate employment, wage and demographic impacts at the county, regional and state level. Layoff information is taken from Covered Employment and Wage (CEW) data and layoff notices maintained by the Missouri Department of Economic Development.

In this layoff scenario, it is assumed that the air transportation industry will eliminate 3.1% of its Missouri work force, translating into a loss of 819 jobs (earning an average wage of \$45,392 per job) and \$37.2 million in wages. Of this total, the Kansas City area will lose 632 workers (earning \$46,377 per job) and \$29.3 million wages; and the St. Louis area will lose 187 workers (earning \$42,061 per job) and \$7.9 million wages.

The IMPLAN **input-output model** is utilized to estimate the impacts of economic events in Missouri counties. IMPLAN is a well-established input-output model that examines the economic relationships among businesses, and between businesses and consumers. The model estimates how changes in one or several economic sectors affects an entire economy. IMPLAN derives three types of economic effects that permit one to assess the impact of economic events: *direct effects* are economic impacts directly attributable to events; *indirect effects* are business-to-business economic impacts; and *induced effects* are business-to-consumer and household expenditure impacts (spending of discretionary income by employees). While IMPLAN is a powerful tool in examining economic changes at the local level, it is limited in that it cannot predict long-term effects. It only offers a snapshot of an area's economy at one point in time, and is therefore relatively static.

The REMI Missouri Multi-Regional **econometric model** is utilized to forecast economic impacts at the regional and state level. REMI includes a model that has been built for Missouri's 15 economic regions. The model-building system uses hundreds of programs developed over the last two decades to build customized models for each area using data from the Bureau of Economic Analysis, the Bureau of Labor Statistics, the Department of Energy, the Census Bureau and other public sources.

The REMI model is a structural model, meaning that it clearly identifies cause and effect relationships. The model shares two key underlying assumptions with mainstream economic theory: households maximize utility and producers maximize profits. Since these assumptions make sense to most people, the model can be understood by intelligent lay people as well as trained economists. In the model, businesses produce goods to sell to other firms, consumers, investors, governments and purchasers outside of the region. The output is produced using labor, capital, fuel and intermediate inputs. The demand for labor, capital and fuel per unit of

output depends on their relative costs, since an increase in the price of any one of these inputs leads to substitution away from that input to other inputs. The supply of labor in the model depends on the number of people in the population and the proportion of those people who participate in the labor force. Economic migration affects the population size. People will move into an area if the real after-tax wage rates or the likelihood of being employed increases in a region.

Supply and demand for labor in the model determines the wage rates. These wage rates, along with other prices and productivity, determine the cost of doing business for every industry in the model. An increase in the cost of doing business causes either an increase in price or a cut in profits depending on the market for the product. In either case, an increase in cost would decrease the share of the local and US market supplied by local firms. This market share combined with the demand described above determines the amount of local output. Of course, there are also many other feedbacks in the model such as the feedback from changes in wages and employment to income and consumption, the feedback of economic expansion to investment, and the feedback of population to government spending.

**Map 2.1**  
**Missouri Economic Regions**



### **III. Impacts in Jackson County and Platte County**

It is estimated that the air transportation industry will lay off 632 workers with an annual payroll of \$29.3 million in Jackson and Platte counties during 2001. This direct impact would create an additional loss of 599 jobs and \$17.7 million in wages in other ancillary sectors of the local economy. In total, Jackson and Platte counties would lose 1,231 jobs and \$47.1 million in wages due to layoffs in the air transportation industry. This impact is significant since many of the ancillary jobs lost are in high wage sectors.

Business-to-business job and wage losses (indirect effects) attributable to the layoffs are concentrated in Transportation, Communications and Public Utilities (loss of 46 jobs earning \$34,526), Professional Services (loss of 25 jobs earning \$38,958) and Personal Services (loss of 23 jobs earning \$18,193). These are goods and services purchased by the air transportation industry from other businesses in Jackson and Platte counties.

Business-to-household jobs losses (induced effects) attributable to the layoffs are concentrated in Government (loss of 141 jobs earning \$37,728), Trade (loss of 115 jobs earning \$19,811), Professional Services (loss of 81 jobs earning \$34,401) and Personal Services (loss of 63 jobs earning \$16,343). These are goods and services purchased by households that have one or more members employed by the air transportation industry in Jackson and Platte counties.

In total, layoffs in the air transportation industry would result in the loss of 1,231 jobs and \$47.1 million in wages in Jackson and Platte counties. The most negatively affected sectors are Transportation, Communications and Public Utilities (loss of 689 jobs earning \$45,517 per job), Government (loss of 142 jobs earning \$37,822 per job), Trade (loss of 133 jobs earning \$20,198 per job), Professional Services (loss of 106 jobs earning \$35,463 per job) and Personal Services (loss of 87 jobs earning \$16,821 per job). Refer to Tables 3.1 and 3.2.

**Table 3.1**  
**Employment Impacts in Jackson County and Platte County**

Assumes 100% local impact.  
Numbers may not total due to rounding.

SECTOR	EMPLOYMENT			TOTAL
	Direct	Indirect	Induced	
Agriculture	0.0	-0.1	-1.8	-1.9
Construction	0.0	-2.1	-11.2	-13.3
Finance, Insur & Real Estate	0.0	-12.5	-31.8	-44.4
Government	0.0	-0.9	-140.9	-141.9
Manufacturing - Durable	0.0	-1.4	-1.6	-3.0
Manufacturing - Non-Durable	0.0	-2.5	-5.4	-7.9
Mining	0.0	-0.1	-0.1	-0.2
Services - Personal & Other	0.0	-23.3	-63.4	-86.8
Services - Professional	0.0	-24.7	-81.2	-105.9
Transport, Comm. & Public Utilities	-632.0	-46.3	-11.1	-689.4
Trade	0.0	-18.1	-114.6	-132.8
Other	0.0	0.0	-4.0	-4.0
<b>TOTAL</b>	<b>-632.0</b>	<b>-132.2</b>	<b>-467.2</b>	<b>-1,231.4</b>

Source: IMPLAN Analysis by MERIC, MO Department of Economic Development

**Table 3.2**  
**Wage Impacts in Jackson County and Platte County**

Assumes 100% local impact. Adjusted to 2001 dollars.  
Numbers may not total due to rounding.

SECTOR	WAGES			TOTAL
	Direct	Indirect	Induced	
Agriculture	\$0	-\$992	-\$16,335	-\$17,327
Construction	\$0	-\$73,303	-\$376,180	-\$449,483
Finance, Insur & Real Estate	\$0	-\$381,676	-\$984,602	-\$1,366,278
Government	\$0	-\$51,027	-\$5,315,874	-\$5,366,901
Manufacturing - Durable	\$0	-\$73,826	-\$53,375	-\$127,200
Manufacturing - Non-Durable	\$0	-\$103,619	-\$293,928	-\$397,547
Mining	\$0	-\$57	-\$274	-\$331
Services - Personal & Other	\$0	-\$423,902	-\$1,036,124	-\$1,460,025
Services - Professional	\$0	-\$962,255	-\$2,793,323	-\$3,755,578
Transport, Comm. & Public Utilities	-\$29,310,410	-\$1,598,553	-\$470,122	-\$31,379,084
Trade	\$0	-\$411,906	-\$2,270,337	-\$2,682,243
Other	\$0	\$0	-\$46,694	-\$46,694
<b>TOTAL</b>	<b>-\$29,310,410</b>	<b>-\$4,081,117</b>	<b>-\$13,657,166</b>	<b>-\$47,048,692</b>

Source: IMPLAN Analysis by MERIC, MO Department of Economic Development

There are several specific economic sectors that would be adversely affected by air transportation layoffs in Jackson and Platte counties. As expected, the layoffs would result in the loss of 632 air transportation jobs earning \$46,377 per job. The counties also lose high wage jobs in non-military federal government (loss of 42 jobs earning \$45,956 per job) and wholesale trade (loss of 18 jobs earning \$44,564 per job).

In general, however, the majority of other job losses occur in state and local government, services and retail. The state and local education sector would lose 50 jobs earning \$34,501 per job, the eating and drinking sector would lose 45 jobs earning \$13,185 per job, the arrangement of passenger transport sector would lose 39 jobs earning \$33,158 per job, and the state and local government sector would lose 37 jobs earning \$34,980 per job. Refer to Table 3.3.

**Table 3.3**  
**Most Impacted Economic Sectors in Jackson County and Platte County**

Assumes 100% local impact.  
Numbers may not total due to rounding.

SECTOR	IMPACTS	
	Employment	Average Wage Per Job
Air Transportation	-632.0	\$46,377
State & Local Education	-49.9	\$34,501
Eating & Drinking	-45.1	\$13,185
Federal Government - Non-Military	-42.1	\$45,956
Arrangement of Passenger Transportation	-38.8	\$33,158
State & Local Government	-37.0	\$34,980
Miscellaneous Retail	-21.5	\$13,009
Hospitals	-20.5	\$35,778
Personnel Supply Services	-19.2	\$13,136
Wholesale Trade	-17.9	\$44,564

Source: IMPLAN Analysis by MERIC, MO Department of Economic Development

## **IV. Impacts in St. Louis City and St. Louis County**

It is estimated that the air transportation industry will lay off 187 workers with an annual payroll of \$7.9 million in St. Louis city and county during 2001. This direct impact would create an additional loss of 167 jobs and \$4.2 million in wages in other ancillary sectors of the local economy. In total, St. Louis city and county would lose 354 jobs and \$13.1 million in wages due to layoffs in the air transportation industry. This impact is significant since many of the ancillary jobs lost are in high wage sectors.

Business-to-business job and wage losses (indirect effects) attributable to the layoffs are concentrated in Transportation, Communications and Public Utilities (loss of 21 jobs earning \$31,119), Professional Services (loss of 10 jobs earning \$46,789) and Personal Services (loss of 9 jobs earning \$20,070). These are goods and services purchased by the air transportation industry from other businesses St. Louis city and county.

Business-to-household jobs losses (induced effects) attributable to the layoffs are concentrated in Trade (loss of 29 jobs earning \$22,097), Government (loss of 26 jobs earning \$37,716), Professional Services (loss of 25 jobs earning \$35,970) and Personal Services (loss of 16 jobs earning \$17,536). These are goods and services purchased by households that have one or more members employed by the air transportation industry in St. Louis city and county.

In total, layoffs in the air transportation industry would result in the loss of 354 jobs and \$13.1 million in wages in St. Louis city and county. The most negatively affected sectors are Transportation, Communications and Public Utilities (loss of 210 jobs earning \$41,025 per job), Trade (loss of 36 jobs earning \$22,421 per job), Professional Services (loss of 35 jobs earning \$39,079 per job), Government (loss of 27 jobs earning \$38,035 per job) and Personal Services (loss of 26 jobs earning \$18,440 per job). Refer to Tables 4.1 and 4.2.

**Table 4.1**  
**Employment Impacts in St. Louis City and St. Louis County**

Assumes 100% local impact.  
Numbers may not total due to rounding.

SECTOR	EMPLOYMENT			
	Direct	Indirect	Induced	TOTAL
Agriculture	0.0	0.0	-0.4	-0.4
Construction	0.0	-0.6	-2.9	-3.6
Finance, Insur & Real Estate	0.0	-4.2	-7.2	-11.4
Government	0.0	-0.4	-26.2	-26.5
Manufacturing - Durable	0.0	-0.4	-0.6	-1.0
Manufacturing - Non-Durable	0.0	-1.0	-1.8	-2.9
Mining	0.0	0.0	0.0	-0.1
Services - Personal & Other	0.0	-9.1	-16.4	-25.5
Services - Professional	0.0	-10.0	-24.8	-34.8
Transport, Comm. & Public Utilities	-187.0	-20.5	-2.8	-210.3
Trade	0.0	-7.1	-28.9	-36.0
Other	0.0	0.0	-1.4	-1.4
<b>TOTAL</b>	<b>-187.0</b>	<b>-53.3</b>	<b>-113.5</b>	<b>-353.9</b>

Source: IMPLAN Analysis by MERIC, MO Department of Economic Development

**Table 4.2**  
**Wage Impacts in St. Louis City and St. Louis County**

Assumes 100% local impact. Adjusted to 2001 dollars.  
Numbers may not total due to rounding.

SECTOR	WAGES			
	Direct	Indirect	Induced	TOTAL
Agriculture	\$0	-\$387	-\$3,910	-\$4,296
Construction	\$0	-\$23,217	-\$109,572	-\$132,789
Finance, Insur & Real Estate	\$0	-\$155,277	-\$258,137	-\$413,414
Government	\$0	-\$19,767	-\$988,158	-\$1,007,925
Manufacturing - Durable	\$0	-\$26,928	-\$33,942	-\$60,871
Manufacturing - Non-Durable	\$0	-\$60,223	-\$96,325	-\$156,548
Mining	\$0	-\$74	-\$194	-\$269
Services - Personal & Other	\$0	-\$182,636	-\$287,591	-\$470,227
Services - Professional	\$0	-\$467,888	-\$892,047	-\$1,359,935
Transport, Comm. & Public Utilities	-\$7,865,000	-\$637,939	-\$124,568	-\$8,627,506
Trade	\$0	-\$168,557	-\$638,604	-\$807,161
Other	\$0	\$0	-\$17,101	-\$17,101
<b>TOTAL</b>	<b>-\$7,865,000</b>	<b>-\$1,742,894</b>	<b>-\$3,450,148</b>	<b>-\$13,058,041</b>

Source: IMPLAN Analysis by MERIC, MO Department of Economic Development

There are several specific economic sectors that would be adversely affected by air transportation layoffs in St. Louis city and county. As expected, the layoffs would result in the loss of 187 air transportation jobs earning \$42,059 per job. The city and county also loses high wage jobs in computer and data processing services (loss of 8 jobs earning \$53,999 per job) and wholesale trade (loss of 5 jobs earning \$51,888 per job).

In general, however, the majority of other job losses occur in state and local government, services and retail. The arrangement of passenger transport sector would lose 18 jobs earning \$28,841 per job, the eating and drinking sector would lose 14 jobs earning \$13,153 per job, the state and local education sector would lose 12 jobs earning \$35,799 per job, and the state and local government sector would lose 9 jobs earning \$36,958 per job. Refer to Table 4.3.

**Table 4.3**  
**Most Impacted Economic Sectors in St. Louis City and St. Louis County**

Assumes 100% local impact.  
Numbers may not total due to rounding.

SECTOR	IMPACTS	
	Employment	Average Wage Per Job
Air Transportation	-187.0	\$42,059
Arrangement of Passenger Transportation	-17.6	\$28,841
Eating & Drinking	-13.9	\$13,153
State & Local Education	-11.5	\$35,799
State & Local Government	-8.7	\$36,958
Computer & Data Processing Services	-7.8	\$53,999
Personnel Supply Services	-6.8	\$15,359
Hospitals	-5.4	\$35,212
Miscellaneous Retail	-5.3	\$12,985
Wholesale Trade	-5.0	\$51,888

Source: IMPLAN Analysis by MERIC, MO Department of Economic Development

## V. Impacts Across Missouri

### Gross State/Regional Product Impacts

Gross state/regional product for each state/region is derived as the sum of the gross state/regional product originating in all industries in the state/region. In concept, an industry's GSP/GRP, or its value added, is equal to its gross output (sales or receipts and other operating income, commodity taxes, and inventory change) minus its intermediate inputs (consumption of goods and services purchased from other U.S. industries or imported). Thus, GSP/GRP is often considered the state/regional counterpart of the national gross domestic product (GDP). GSP/GRP impacts are ascertained by examining the difference between the baseline projection (no loss of jobs) and the scenario projection (loss of 819 jobs). The differential indicates the number of jobs above or below what would have been expected if no change in the economy had occurred.

The loss of 819 air transportation jobs in Kansas City would result in a gross regional product (GRP) decrease of \$60.7 million in Kansas City and \$7.8 million in the Kansas City Metro Region in 2001. By 2009, GRP in both regions recovers slightly, resulting in a continued decrease of \$55.9 million in Kansas City and \$3.9 million in the Kansas City Metro Region.

The loss of 187 air transportation jobs in St. Louis would result in a gross regional product (GRP) decrease of \$22.7 million in the St. Louis Metro Region in 2001. By 2009, GRP in the St. Louis Metro Region recovers slightly, resulting in a continued decrease of \$17.1 million.

Layoffs also affect gross state product (GSP), resulting in a decrease of 0.06% in 2001, translating into a \$101.1 million dollar annual loss in GSP. By 2009, GSP in Missouri recovers slightly, resulting in a continued decrease of 0.05% in GSP, translating into a \$82.4 million dollar annual loss. In addition, economic losses also occur in parts of the Kansas City and St. Louis metropolitan areas located outside of Missouri. Refer to Tables 5.1 and 5.2.

**Table 5.1**  
**Gross State/Regional Product Impacts Across Missouri, 2001-2009**

Difference from baseline projection. Adjusted to 2001 Dollars.  
Numbers may not total due to rounding.

REGION	GROSS STATE / REGIONAL PRODUCT				
	2001	2003	2005	2007	2009
Bootheel	-\$438,200	-\$384,739	-\$314,979	-\$266,753	-\$239,948
Central	-\$930,800	-\$853,016	-\$719,991	-\$620,313	-\$562,004
Kansas City	-\$60,720,000	-\$59,058,649	-\$57,254,043	-\$56,437,847	-\$55,902,414
Kansas City Metro	-\$7,788,000	-\$6,580,277	-\$5,249,347	-\$4,362,052	-\$3,923,267
Lake Ozark - Rolla	-\$516,400	-\$466,944	-\$393,746	-\$339,512	-\$310,219
Lower East / Cape Girardeau	-\$634,200	-\$562,295	-\$471,787	-\$413,484	-\$385,209
North Central	-\$213,000	-\$190,512	-\$158,353	-\$136,585	-\$124,899
North East	-\$284,700	-\$250,047	-\$201,870	-\$168,325	-\$148,405
North West	-\$639,900	-\$583,252	-\$486,051	-\$415,999	-\$376,932
South Central	-\$237,200	-\$213,278	-\$177,613	-\$151,328	-\$136,156
South West	-\$1,311,000	-\$1,166,885	-\$987,546	-\$865,906	-\$798,062
Springfield	-\$1,519,000	-\$1,333,582	-\$1,092,933	-\$930,513	-\$842,592
St. Louis	-\$2,569,000	-\$2,048,954	-\$1,561,722	-\$1,275,662	-\$1,167,875
St. Louis Metro	-\$22,720,000	-\$20,813,411	-\$18,878,753	-\$17,717,044	-\$17,124,977
West Central	-\$577,000	-\$522,383	-\$431,086	-\$368,476	-\$338,196
<b>MISSOURI</b>	<b>-\$101,100,000</b>	<b>-\$95,027,272</b>	<b>-\$88,370,371</b>	<b>-\$84,465,985</b>	<b>-\$82,396,880</b>
Kansas City, Kansas	-\$11,830,000	-\$10,259,059	-\$8,421,850	-\$7,226,438	-\$6,658,794
St. Louis, Illinois	-\$1,800,000	-\$1,592,678	-\$1,346,406	-\$1,175,933	-\$1,080,140
<b>TOTAL</b>	<b>-\$114,700,000</b>	<b>-\$106,877,104</b>	<b>-\$98,118,639</b>	<b>-\$92,877,895</b>	<b>-\$90,135,814</b>

Source: REMI Analysis by MERIC, MO Department of Economic Development

## Employment and Wage Impacts by Industry

Layoffs in the air transportation industry will have an economic impact on other industries in the state economy. Employment and wage impacts are ascertained by examining the difference between the baseline projection (no loss of jobs) and the scenario projection (loss of 819 jobs). The differential indicates the number of jobs above or below what would have been expected if no change in the economy had occurred.

In 2001, the loss of 819 air transport jobs would result in the loss of 1,373 ancillary jobs in the state economy - for a total loss of 2,192 jobs (at \$40,899 per job) and \$89.7 million in wages across Missouri. By 2009, the region recovers 17.2% of the original jobs lost, resulting in the continued loss of 1,814 jobs (at \$46,769 per job) and \$84.8 million in wages.

As expected, the Transportation, Communications and Public Utilities sector would be most impacted, resulting in the loss of 1,016 jobs (at \$43,268 per job) and \$43.7 million in wages. By 2009 this sector experiences very little recovery, with the continued loss of 977 jobs (at \$47,840 per job) and \$46.7 million in wages - a job gain of only 3.8% from 2001. This indicates that this sector does not recover quickly.

The Services sector would also be impacted in 2001, resulting in the loss of 443 jobs (at \$39,277 per job) and \$17.4 million in wages. By 2009 this sector recovers moderately, with the continued loss of 347 jobs (at \$48,439 per job) and \$16.8 million in wages - a job gain of 21.6% from 2001. The Retail Trade sector is also moderately impacted in 2001, resulting in the loss of 300 jobs (at \$18,765 per job) and \$5.6 million in wages. By 2009 this sector recovers moderately, with the continued loss of 201 jobs (at \$21,943 per job) and \$4.4 million in wages - a job gain of 33.0% from 2001. However, the economic impact of this sector is mediated by its relatively low average wage per job.

It appears that the Durable Manufacturing sector experiences a small increase of jobs by 2007 due to layoffs in air transportation. This may indicate that former air transport workers found employment in this sector. Conversely, the Government sector experiences a 390.8% decline in employment between 2001 and 2009. This loss is attributable to the decreased demand for public services caused by population losses in Missouri. Refer to Tables 5.2 and 5.3.

**Table 5.2**  
**Employment Impacts by Industry in Missouri, 2001-2009**

Difference from baseline projection.  
Numbers may not total due to rounding.

SECTOR	EMPLOYMENT				
	2001	2003	2005	2007	2009
Agriculture, Forestry, Fishing	-9.9	-8.7	-7.4	-6.7	-6.5
Construction	-158.4	-128.8	-97.8	-76.1	-63.1
Finance, Insur and Real Estate	-103.6	-90.1	-76.8	-68.3	-63.5
Government	-24.5	-71.7	-97.9	-115.4	-126.8
Manufacturing - Durable	-38.2	-19.4	-3.2	6.2	10.0
Manufacturing - Non-Durable	-32.5	-21.7	-13.2	-8.6	-7.0
Mining	-2.8	-2.2	-1.7	-1.4	-1.2
Services	-442.5	-394.5	-357.4	-344.1	-346.7
Trade - Retail	-300.4	-267.5	-233.2	-211.0	-201.2
Trade - Wholesale	-63.6	-53.7	-43.0	-35.2	-30.8
Transport, Comm. & Public Utilities	-1,016.0	-1,002.0	-989.0	-979.9	-977.0
<b>TOTAL</b>	<b>-2,192.0</b>	<b>-2,060.0</b>	<b>-1,921.0</b>	<b>-1,841.0</b>	<b>-1,814.0</b>

Source: REMI Analysis by MERIC, MO Department of Economic Development

**Table 5.3**  
**Wage Impacts by Industry in Missouri, 2001-2009**

Difference from baseline projection. Adjusted to 2001 Dollars.  
Numbers may not total due to rounding.

SECTOR	WAGES				
	2001	2003	2005	2007	2009
Agriculture, Forestry, Fishing	-\$162,100	-\$175,366	-\$160,079	-\$143,089	-\$132,348
Construction	-\$6,394,000	-\$5,768,696	-\$4,749,669	-\$3,914,573	-\$3,349,675
Finance, Insur and Real Estate	-\$4,978,000	-\$5,272,413	-\$4,868,683	-\$4,419,288	-\$4,069,769
Government	-\$2,194,800	-\$3,874,533	-\$4,550,833	-\$4,870,609	-\$5,055,063
Manufacturing - Durable	-\$2,879,000	-\$2,593,818	-\$1,767,044	-\$1,056,258	-\$613,321
Manufacturing - Non-Durable	-\$2,330,000	-\$2,370,919	-\$1,902,411	-\$1,451,705	-\$1,150,494
Mining	-\$118,100	-\$102,305	-\$83,274	-\$69,004	-\$60,165
Services	-\$17,380,000	-\$17,736,646	-\$17,016,316	-\$16,650,379	-\$16,793,900
Trade - Retail	-\$5,637,000	-\$5,923,964	-\$5,379,264	-\$4,803,461	-\$4,414,917
Trade - Wholesale	-\$3,617,000	-\$3,818,808	-\$3,357,838	-\$2,842,705	-\$2,459,077
Transport, Comm. & Public Utilities	-\$43,960,000	-\$45,113,188	-\$45,588,827	-\$46,048,704	-\$46,739,848
<b>TOTAL</b>	<b>-\$89,650,000</b>	<b>-\$92,750,656</b>	<b>-\$89,424,238</b>	<b>-\$86,269,776</b>	<b>-\$84,838,576</b>

Source: REMI Analysis by MERIC, MO Department of Economic Development

Layoffs in the air transportation industry will also have an economic impact on employment in the Greater Kansas City Region. Employment and wage impacts are ascertained by examining the difference between the baseline projection (no loss of jobs) and the scenario projection (loss of 632 jobs). The differential indicates the number of jobs above or below what would have been expected if no change in the economy had occurred.

The loss of 632 air transportation jobs in Kansas City would result in the loss of 841 ancillary jobs in the Greater Kansas City Region - for a total loss of 1,473 jobs (at \$43,299 per job) and \$63.8 million in wages. By 2009 the region experiences a small recovery, with the continued loss of 1,297 jobs (at \$49,279 per job) and \$63.9 million in wages - a job gain of 11.9% from 2001.

As expected, the Transportation, Communications and Public Utilities sector would be most impacted, resulting in the loss of 770 jobs (at \$46,624 per job) and \$35.9 million in wages. By 2009 this sector experiences very little recovery, with the continued loss of 746 jobs (at \$51,431 per job) and \$38.3 million in wages - a job gain of only 3.2% from 2001. This indicates that this sector does not recover quickly.

The Services sector would also be impacted in 2001, resulting in the loss of 277 jobs (at \$40,173 per job) and \$11.1 million in wages. By 2009 this sector recovers slowly, with the continued loss of 235 jobs (at \$49,437 per job) and \$11.6 million in wages - a job gain of 15.1% from 2001. The Retail Trade sector is also moderately impacted in 2001, resulting in the loss of 185 jobs (at \$18,918 per job) and \$3.5 million in wages. By 2009 this sector recovers moderately, with the continued loss of 133 jobs (at \$21,875 per job) and \$2.9 million in wages - a job gain of 28.0% from 2001. However, the economic impact of this sector is mediated by its relatively low average wage per job.

It appears that the Durable Manufacturing sector experiences a small increase of jobs by 2003 due to layoffs in air transportation. This may indicate that former air transport workers found employment in this sector. Conversely, the Government sector experiences a 438.9% decline in employment between 2001 and 2009. This loss is attributable to the decreased demand for public services caused by population losses in the Greater Kansas City Region. Refer to Tables 5.4 and 5.5.

**Table 5.4**  
**Employment Impacts by Industry in the Greater Kansas City Region, 2001-2009**

Difference from baseline projection.  
Numbers may not total due to rounding.

SECTOR	EMPLOYMENT				
	2001	2003	2005	2007	2009
Agriculture, Forestry, Fishing	-4.5	-4.0	-3.4	-3.1	-3.0
Construction	-96.2	-79.1	-61.2	-48.4	-40.5
Finance, Insur and Real Estate	-65.0	-57.5	-50.1	-45.2	-42.2
Government	-16.2	-47.4	-65.5	-78.4	-87.3
Manufacturing - Durable	-6.5	0.8	6.5	9.5	10.5
Manufacturing - Non-Durable	-14.8	-9.1	-4.6	-2.1	-1.2
Mining	-0.7	-0.5	-0.3	-0.2	-0.1
Services	-277.3	-254.1	-236.7	-232.1	-235.4
Trade - Retail	-184.8	-167.9	-150.1	-138.2	-133.0
Trade - Wholesale	-36.8	-31.7	-26.0	-21.9	-19.4
Transport, Comm. & Public Utilities	-770.2	-761.4	-753.3	-747.5	-745.6
<b>TOTAL</b>	<b>-1,473.0</b>	<b>-1,412.0</b>	<b>-1,345.0</b>	<b>-1,308.0</b>	<b>-1,297.0</b>

Source: REMI Analysis by MERIC, MO Department of Economic Development

**Table 5.5**  
**Wage Impacts by Industry in the Greater Kansas City Region, 2001-2009**

Difference from baseline projection. Adjusted to 2001 Dollars.  
Numbers may not total due to rounding.

SECTOR	WAGES				
	2001	2003	2005	2007	2009
Agriculture, Forestry, Fishing	-\$78,830	-\$87,493	-\$81,130	-\$72,975	-\$67,258
Construction	-\$4,164,000	-\$3,794,042	-\$3,177,954	-\$2,656,256	-\$2,288,572
Finance, Insur and Real Estate	-\$3,218,000	-\$3,493,986	-\$3,301,511	-\$3,049,101	-\$2,829,056
Government	-\$1,444,600	-\$2,580,806	-\$3,085,486	-\$3,371,207	-\$3,552,220
Manufacturing - Durable	-\$898,500	-\$819,963	-\$499,315	-\$205,788	-\$9,080
Manufacturing - Non-Durable	-\$1,275,000	-\$1,351,681	-\$1,112,920	-\$859,055	-\$673,494
Mining	-\$28,070	-\$23,823	-\$18,061	-\$13,459	-\$10,230
Services	-\$11,140,000	-\$11,659,320	-\$11,483,515	-\$11,447,135	-\$11,637,370
Trade - Retail	-\$3,496,000	-\$3,727,363	-\$3,454,140	-\$3,137,556	-\$2,909,342
Trade - Wholesale	-\$2,127,000	-\$2,305,192	-\$2,085,930	-\$1,810,729	-\$1,590,827
Transport, Comm. & Public Utilities	-\$35,910,000	-\$36,835,451	-\$37,303,253	-\$37,749,531	-\$38,347,036
<b>TOTAL</b>	<b>-\$63,780,000</b>	<b>-\$66,679,120</b>	<b>-\$65,603,212</b>	<b>-\$64,372,793</b>	<b>-\$63,914,486</b>

Source: REMI Analysis by MERIC, MO Department of Economic Development

Layoffs in the air transportation industry will also have an economic impact on employment in the St. Louis Metro Region. Employment and wage impacts are ascertained by examining the difference between the baseline projection (no loss of jobs) and the scenario projection (loss of 187 jobs). The differential indicates the number of jobs above or below what would have been expected if no change in the economy had occurred.

The loss of 187 air transportation jobs in St. Louis would result in the loss of 312 ancillary jobs in the St. Louis Metro Region - for a total loss of 499 jobs (at \$37,412 per job) and \$18.7 million in wages. By 2009 the region experiences a moderate recovery, with the continued loss of 381 jobs (at \$42,460 per job) and \$16.2 million in wages - a job gain of 23.6% from 2001.

As expected, the Transportation, Communications and Public Utilities sector would be most impacted, resulting in the loss of 234 jobs (at \$31,887 per job) and \$7.5 million in wages. By 2009 this sector experiences very little recovery, with the continued loss of 225 jobs (at \$35,735 per job) and \$8.0 million in wages - a job gain of only 3.9% from 2001. This indicates that this sector does not recover quickly.

The Services sector would also be impacted in 2001, resulting in the loss of 105 jobs (at \$40,660 per job) and \$4.3 million in wages. By 2009 this sector recovers moderately, with the continued loss of 72 jobs (at \$51,927 per job) and \$3.8 million in wages - a job gain of 30.9% from 2001. The Retail Trade sector is also moderately impacted in 2001, resulting in the loss of 66 jobs (at \$19,234 per job) and \$1.3 million in wages. By 2009 this sector recovers quickly, with the continued loss of 38 jobs (at \$24,103 per job) and \$915,429 in wages - a job gain of 42.2% from 2001. However, the economic impact of this sector is mediated by its relatively low average wage per job.

It appears that the Durable Manufacturing sector experiences a small increase of jobs by 2005 due to layoffs in air transportation. This may indicate that former air transport workers found employment in this sector. Conversely, the Government sector experiences a 385.0% decline in employment between 2001 and 2009. This loss is attributable to the decreased demand for public services caused by population losses in the St. Louis Metro Region. Refer to Tables 5.6 and 5.7.

**Table 5.6**  
**Employment Impacts by Industry in the St. Louis Metro Region, 2001-2009**

Difference from baseline projection.  
Numbers may not total due to rounding.

SECTOR	EMPLOYMENT				
	2001	2003	2005	2007	2009
Agriculture, Forestry, Fishing	-2.8	-2.4	-2.0	-1.8	-1.7
Construction	-34.5	-26.9	-19.4	-14.5	-11.7
Finance, Insur and Real Estate	-23.3	-19.5	-16.0	-13.8	-12.7
Government	-4.0	-11.6	-15.5	-17.9	-19.4
Manufacturing - Durable	-10.4	-4.4	0.6	3.4	4.6
Manufacturing - Non-Durable	-4.3	-2.0	-0.3	0.6	0.9
Mining	-0.5	-0.3	-0.3	-0.2	-0.2
Services	-104.6	-89.3	-77.5	-72.6	-72.3
Trade - Retail	-65.8	-56.0	-46.5	-40.5	-38.0
Trade - Wholesale	-14.1	-11.3	-8.5	-6.5	-5.4
Transport, Comm. & Public Utilities	-234.2	-230.8	-227.7	-225.6	-224.9
<b>TOTAL</b>	<b>-498.5</b>	<b>-454.6</b>	<b>-413.0</b>	<b>-389.4</b>	<b>-380.9</b>

Source: REMI Analysis by MERIC, MO Department of Economic Development

**Table 5.7**  
**Wage Impacts by Industry in the St. Louis Metro Region, 2001-2009**

Difference from baseline projection. Adjusted to 2001 Dollars.  
Numbers may not total due to rounding.

SECTOR	WAGES				
	2001	2003	2005	2007	2009
Agriculture, Forestry, Fishing	-\$50,250	-\$53,000	-\$47,724	-\$42,424	-\$39,382
Construction	-\$1,499,000	-\$1,320,247	-\$1,049,324	-\$839,630	-\$708,257
Finance, Insur and Real Estate	-\$1,140,000	-\$1,172,600	-\$1,047,507	-\$928,779	-\$845,075
Government	-\$357,680	-\$628,136	-\$746,928	-\$792,662	-\$820,145
Manufacturing - Durable	-\$1,151,000	-\$1,043,052	-\$730,348	-\$466,818	-\$307,819
Manufacturing - Non-Durable	-\$456,100	-\$425,603	-\$303,441	-\$199,718	-\$136,321
Mining	-\$27,670	-\$23,947	-\$19,278	-\$15,818	-\$13,690
Services	-\$4,253,000	-\$4,213,168	-\$3,922,020	-\$3,758,476	-\$3,752,762
Trade - Retail	-\$1,265,000	-\$1,310,721	-\$1,158,345	-\$1,010,296	-\$915,429
Trade - Wholesale	-\$982,300	-\$1,013,523	-\$860,537	-\$705,907	-\$597,346
Transport, Comm. & Public Utilities	-\$7,468,000	-\$7,694,770	-\$7,794,072	-\$7,889,851	-\$8,036,903
<b>TOTAL</b>	<b>-\$18,650,000</b>	<b>-\$18,898,768</b>	<b>-\$17,679,525</b>	<b>-\$16,650,379</b>	<b>-\$16,173,130</b>

Source: REMI Analysis by MERIC, MO Department of Economic Development

## Employment and Wage Impacts by Region

Layoffs in the air transportation industry result in economic losses across the state economy as well. The majority of these direct and indirect job losses across all years are located in the St. Louis Metro Region and in Kansas City - where both of Missouri's major airports are located. However, it appears that both the Kansas City, Kansas and the St. Louis, Illinois metro areas are also negatively affected. This indicates that layoffs in the air transportation industry affect not only Missouri, but also negatively affect portions of Kansas and Illinois. Refer to Map 5.1 and Tables 5.8 and 5.9.

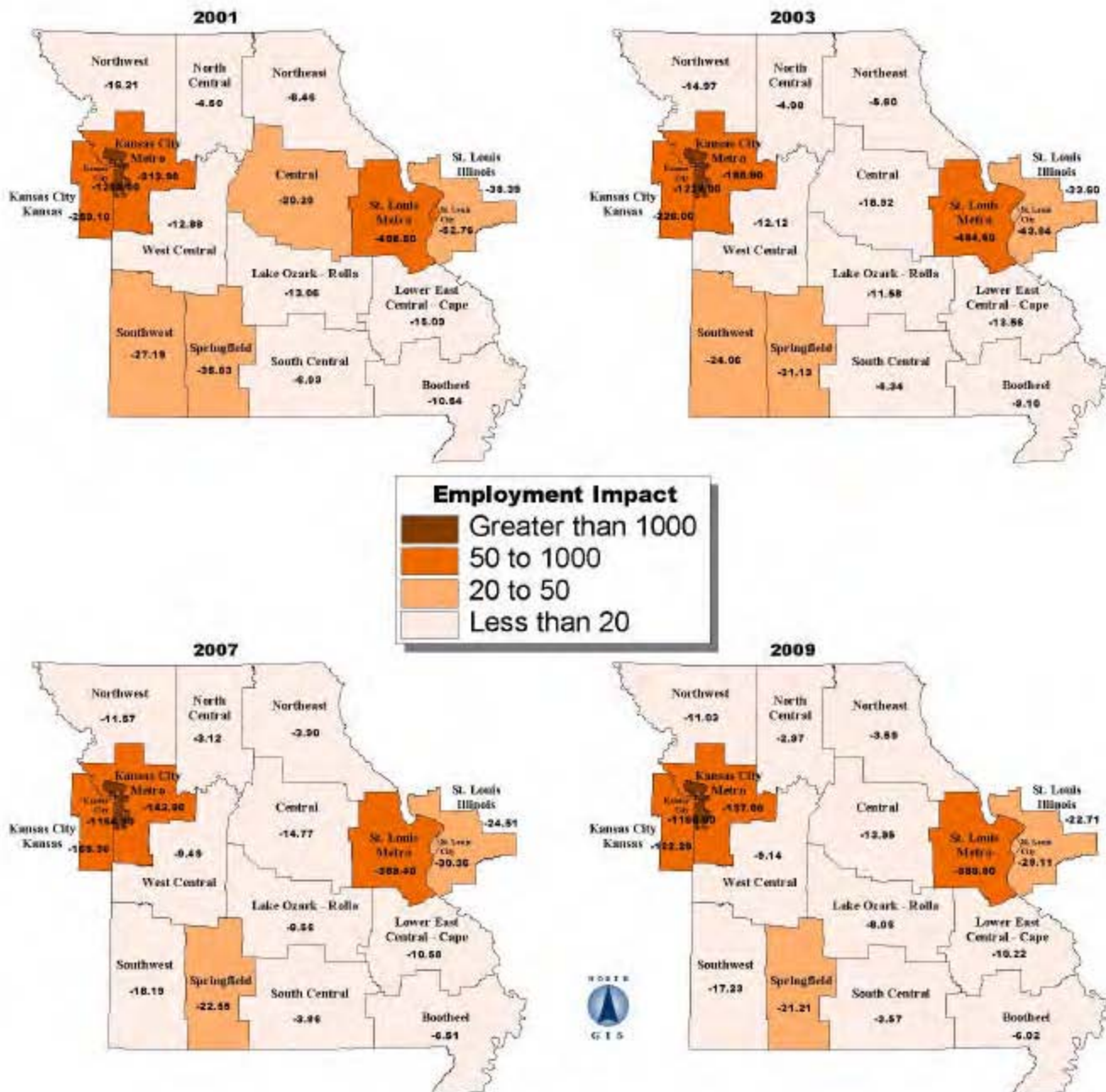
As stated above, layoffs would most impact Kansas City, with the loss of 1,259 jobs (at \$44,241 per job) and \$55.7 million wages in 2001. However, the region recovers only 7.9% of these jobs by 2009, resulting in the continued loss of 1,160 jobs (at \$50,446 per job) and \$58.5 million in wages. This impact is significant in that the jobs lost are in high wage industries. It also appears that the metropolitan areas surrounding Kansas City recover faster than the city itself.

Second, the St. Louis Metro Region experiences the loss of 499 jobs (at \$37,412 per job) and \$18.7 million wages in 2001. However, the region recovers 23.6% of these jobs by 2009, resulting in the continued loss of 381 jobs (at \$42,460 per job) and \$16.2 million in wages.

Third, the Kansas portion of Kansas City experiences the loss of 259 jobs (at \$45,234 per job) and \$11.7 million wages in 2001. However, the region recovers a surprising 37.4% of these jobs by 2009, resulting in the continued loss of only 162 jobs (at \$46,319 per job) and \$7.5 million in wages.

Fourth, the Kansas City Metro Region experiences the loss of 214 jobs (at \$37,798 per job) and \$8.1 million wages in 2001. However, the region recovers a surprising 35.9% of these jobs by 2009, resulting in the continued loss of only 137 jobs (at \$50,446 per job) and \$5.4 million in wages.

**Map 5.1**  
**Employment Impacts Across Missouri, 2001-2009**



Source: REMI Analysis by MERIC, MO Department of Economic Development

**Table 5.8**  
**Employment Impacts Across Missouri, 2001-2009**  
Difference from baseline projection. Numbers may not total due to rounding.

REGION	EMPLOYMENT				
	2001	2003	2005	2007	2009
Bootheel	-10.5	-9.1	-7.5	-6.5	-6.0
Central	-20.2	-18.9	-16.5	-14.8	-14.0
Kansas City	-1,259.0	-1,223.0	-1,184.0	-1,164.0	-1,160.0
Kansas City Metro	-213.9	-188.8	-161.1	-143.8	-137.0
Lake Ozark - Rolla	-13.1	-11.6	-9.7	-8.6	-8.1
Lower East / Cape Girardeau	-15.1	-13.6	-11.7	-10.6	-10.2
North Central	-4.5	-4.1	-3.5	-3.1	-3.0
North East	-6.5	-5.6	-4.6	-3.9	-3.6
North West	-16.2	-15.0	-12.9	-11.6	-11.0
South Central	-6.1	-5.3	-4.4	-3.9	-3.6
South West	-27.2	-24.1	-20.5	-18.2	-17.2
Springfield	-35.8	-31.1	-25.9	-22.6	-21.2
St. Louis	-52.8	-43.6	-35.1	-30.4	-29.1
St. Louis Metro	-498.5	-454.6	-413.0	-389.4	-380.9
West Central	-12.9	-12.1	-10.6	-9.5	-9.1
<b>MISSOURI</b>	<b>-2,192.0</b>	<b>-2,060.0</b>	<b>-1,921.0</b>	<b>-1,841.0</b>	<b>-1,814.0</b>
Kansas City, Kansas	-259.1	-226.0	-190.1	-169.3	-162.2
St. Louis, Illinois	-38.4	-33.6	-28.1	-24.5	-22.7
<b>TOTAL</b>	<b>-2,490.0</b>	<b>-2,320.0</b>	<b>-2,140.0</b>	<b>-2,035.0</b>	<b>-1,999.0</b>

Source: REMI Analysis by MERIC, MO Department of Economic Development

**Table 5.9**  
**Wage Impacts Across Missouri, 2001-2009**  
Difference from baseline projection. Adjusted to 2001 Dollars. Numbers may not total due to rounding.

REGION	WAGES				
	2001	2003	2005	2007	2009
Bootheel	-\$239,700	-\$233,948	-\$198,236	-\$168,498	-\$150,557
Central	-\$609,900	-\$631,832	-\$566,181	-\$503,240	-\$467,730
Kansas City	-\$55,700,000	-\$58,496,639	-\$58,480,526	-\$58,258,982	-\$58,517,925
Kansas City Metro	-\$8,085,000	-\$8,179,623	-\$7,129,954	-\$6,111,209	-\$5,393,250
Lake Ozark - Rolla	-\$294,900	-\$293,198	-\$252,110	-\$215,848	-\$194,011
Lower East / Cape Girardeau	-\$416,800	-\$416,078	-\$364,311	-\$322,167	-\$299,956
North Central	-\$105,000	-\$106,115	-\$92,123	-\$79,263	-\$72,340
North East	-\$152,300	-\$146,504	-\$124,102	-\$104,759	-\$94,109
North West	-\$479,100	-\$496,474	-\$432,812	-\$370,124	-\$331,491
South Central	-\$109,900	-\$106,687	-\$91,305	-\$78,049	-\$69,775
South West	-\$669,200	-\$664,029	-\$586,531	-\$518,156	-\$483,870
Springfield	-\$935,100	-\$909,789	-\$772,866	-\$653,788	-\$590,394
St. Louis	-\$2,855,000	-\$2,764,326	-\$2,309,422	-\$1,939,943	-\$1,748,916
St. Louis Metro	-\$18,650,000	-\$18,898,768	-\$17,679,525	-\$16,650,379	-\$16,173,130
West Central	-\$369,400	-\$393,502	-\$344,324	-\$292,943	-\$261,055
<b>MISSOURI</b>	<b>-\$89,650,000</b>	<b>-\$92,750,656</b>	<b>-\$89,424,238</b>	<b>-\$86,269,776</b>	<b>-\$84,838,576</b>
Kansas City, Kansas	-\$11,720,000	-\$11,802,204	-\$10,057,161	-\$8,489,959	-\$7,512,973
St. Louis, Illinois	-\$1,342,000	-\$1,313,579	-\$1,124,730	-\$956,530	-\$854,180
<b>TOTAL</b>	<b>-\$102,700,000</b>	<b>-\$105,829,289</b>	<b>-\$100,571,605</b>	<b>-\$95,739,679</b>	<b>-\$93,198,280</b>

Source: REMI Analysis by MERIC, MO Department of Economic Development

## Population Impacts

Missouri would experience a moderate decrease in population through 2009 due to layoffs in the air transportation industry. In 2001, Missouri would lose 439 people, with about 66% coming from the Greater Kansas City Region and 23% coming from the Greater St. Louis Region. By 2009, this expands to a loss of 2,196 people, again with about 69% coming from the Greater Kansas City Region and 21% coming from the Greater St. Louis Region. Population declines in these two regions also drives fast decline in Government sector employment, since fewer residents mean less demand for public services. Refer to Table 5.10.

**Table 5.10**  
**Population Impacts Across Missouri, 2001-2009**

Difference from baseline projection. Numbers may not total due to rounding.

REGION	POPULATION				
	2001	2003	2005	2007	2009
Bootheel	-2.5	-7.4	-9.9	-11.2	-11.7
Central	-4.7	-13.7	-17.8	-19.7	-20.5
Kansas City	-114.3	-327.1	-446.5	-533.2	-595.0
Kansas City Metro	-175.9	-527.0	-722.0	-842.1	-915.2
Lake Ozark - Rolla	-3.9	-11.6	-15.3	-17.2	-18.1
Lower East / Cape Girardeau	-4.3	-12.9	-17.0	-19.3	-20.5
North Central	-1.6	-4.5	-5.9	-6.5	-6.7
North East	-1.5	-4.3	-5.6	-6.2	-6.4
North West	-7.0	-20.6	-27.4	-30.6	-32.0
South Central	-1.5	-4.5	-6.0	-6.7	-7.0
South West	-5.3	-15.6	-20.5	-22.8	-24.1
Springfield	-7.0	-21.3	-28.2	-31.5	-33.0
St. Louis	-10.1	-28.8	-37.4	-41.2	-43.1
St. Louis Metro	-92.3	-261.6	-346.1	-396.6	-427.6
West Central	-7.5	-22.2	-29.5	-33.1	-34.8
<b>MISSOURI</b>	<b>-439.0</b>	<b>-1,283.0</b>	<b>-1,735.0</b>	<b>-2,018.0</b>	<b>-2,196.0</b>
Kansas City, Kansas	-108.5	-322.9	-433.8	-492.8	-523.1
St. Louis, Illinois	-15.3	-42.5	-54.0	-58.4	-59.8
<b>TOTAL</b>	<b>-563.5</b>	<b>-1,648.0</b>	<b>-2,223.0</b>	<b>-2,569.0</b>	<b>-2,778.0</b>

Source: REMI Analysis by MERIC, MO Department of Economic Development

## Tax Impacts

Layoffs in the air transportation industry across Missouri would result in a net tax cost for the State of Missouri. In this tax scenario, it is assumed that the air transportation industry will lay off 819 workers at \$45,392 per job.

During 2001, the state would lose an estimated \$4.1 million in tax revenues due to the layoffs. However, decreased demand for public services due to declines in population would save the state \$439,500 in costs. This leads to a net state tax cost of \$3.7 million in 2001. The tax impact remains steady through 2009, with the estimated loss of \$5.4 million in state tax revenues. However, decreased demand for public services due to declines in population would save the state \$2.2 million in costs. This leads to a net state tax cost of \$3.2 million in 2009. Between 2001 and 2009, the State of Missouri is estimated to lose \$23.1 million (net present value) in tax revenues due to layoffs in the air transportation industry. Refer to Table 5.11.

**Table 5.11**  
**State Government Tax Impacts in Missouri, 2001-2009**

Adjusted to 2001 Dollars.  
Numbers may not total due to rounding.

	STATE BENEFITS AND COSTS				
	2001	2003	2005	2007	2009
State Revenues	-4,094,559	-4,675,033	-4,915,201	-5,124,496	-5,401,798
State Expenditures	439,500	1,284,000	1,735,000	2,018,000	2,196,000
<b>NET STATE BENEFIT/COST</b>	<b>-3,655,059</b>	<b>-3,391,033</b>	<b>-3,180,201</b>	<b>-3,106,496</b>	<b>-3,205,798</b>

Source: REMI Analysis by MERIC, MO Department of Economic Development

## VI. Implications and Summary

At present, the air transportation industry is experiencing a wave of cutbacks triggered by the terrorist attack on New York and Washington, D.C. on September 11, 2001. It is assumed for this analysis that the air transportation industry will eliminate 3.1% of its Missouri work force, translating into a loss of 819 jobs (earning an average wage of \$45,392 per job) and \$37.2 million in wages. Of these total layoffs, 632 would occur in Kansas City and 187 would occur in St. Louis.

Layoffs would result in a gross state product (GSP) decrease of 0.06% in 2001, translating into a \$101.1 million dollar annual loss in GSP. By 2009, GSP in Missouri recovers slightly, resulting in a continued decrease of 0.05% in GSP, translating into a \$82.4 million dollar annual loss. In addition, economic losses also occur in parts of the Kansas City and St. Louis metropolitan areas located outside of Missouri.

In 2001, the loss of 819 air transport jobs would result in the loss of 1,373 ancillary jobs in the state economy - for a total loss of 2,192 jobs (at \$40,899 per job) and \$89.7 million in wages across Missouri. By 2009, the region recovers 17.2% of the original jobs lost, resulting in the continued loss of 1,814 jobs (at \$46,769 per job) and \$84.8 million in wages. Transportation, Communications and Public Utilities would lose 1,016 jobs (at \$43,268 per job), Services would lose 443 jobs (at \$39,277 per job) and Retail Trade would lose 300 jobs (at \$18,765 per job).

The loss of 632 air transportation jobs in Kansas City would result in the loss of 841 ancillary jobs in the Greater Kansas City Region - for a total loss of 1,473 jobs (at \$43,299 per job) and \$63.8 million in wages. By 2009 the region experiences a small recovery, with the continued loss of 1,297 jobs (at \$49,279 per job) and \$63.9 million in wages - a job gain of 11.9% from 2001. Transportation, Communications and Public Utilities would lose 770 jobs (at \$46,624 per job), Services would lose 277 jobs (at \$40,173 per job) and Retail Trade would lose 185 jobs (at \$18,918 per job).

The loss of 187 air transportation jobs in St. Louis would result in the loss of 312 ancillary jobs in the St. Louis Metro Region - for a total loss of 499 jobs (at \$37,412 per job) and \$18.7 million in wages. By 2009 the region experiences a moderate recovery, with the continued loss of 381 jobs (at \$42,460 per job) and \$16.2 million in wages - a job gain of 23.6% from 2001. Transportation, Communications and Public Utilities would lose 234 jobs (at \$31,887 per job), Services lose 105 jobs (at \$40,660 per job) and Retail Trade would lose 66 jobs (at \$19,234 per job).

As stated above, layoffs would most impact Kansas City, with the loss of 1,259 jobs (at \$44,241 per job) and \$55.7 million wages in 2001. However, the region recovers only 7.9% of these jobs by 2009, resulting in the continued loss of 1,160 jobs (at \$50,446 per job) and \$58.5 million in wages. This impact is significant in that the

jobs lost are in high wage industries. It also appears that the metropolitan areas surrounding Kansas City recover faster than the city itself.

Second, the St. Louis Metro Region experiences the loss of 499 jobs (at \$37,412 per job) and \$18.7 million wages in 2001. However, the region recovers 23.6% of these jobs by 2009, resulting in the continued loss of 381 jobs (at \$42,460 per job) and \$16.2 million in wages.

Third, the Kansas portion of Kansas City experiences the loss of 259 jobs (at \$45,234 per job) and \$11.7 million wages in 2001. However, the region recovers a surprising 37.4% of these jobs by 2009, resulting in the continued loss of only 162 jobs (at \$46,319 per job) and \$7.5 million in wages.

Fourth, the Kansas City Metro Region experiences the loss of 214 jobs (at \$37,798 per job) and \$8.1 million wages in 2001. However, the region recovers a surprising 35.9% of these jobs by 2009, resulting in the continued loss of only 137 jobs (at \$50,446 per job) and \$5.4 million in wages.

During 2001, the state would lose an estimated \$4.1 million in tax revenues due to the layoffs. However, decreased demand for public services due to declines in population would save the state \$439,500 in costs. This leads to a net state tax cost of \$3.7 million in 2001. The tax impact remains steady through 2009, with the estimated loss of \$5.4 million in state tax revenues. However, decreased demand for public services due to declines in population would save the state \$2.2 million in costs. This leads to a net state tax cost of \$3.2 million in 2009. Between 2001 and 2009, the State of Missouri is estimated to lose \$23.1 million (net present value) in tax revenues due to layoffs in the air transportation industry.

LRS-0901-2

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September 2001

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